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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,809

06/07/2005

Daping Chu

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OLIFF & BERRIDGE, PLC

P.O. BOX 320850

ALEXANDRIA, VA 22320-4850

EXAMINER

TRAN, MINH LOAN

ART UNIT

PAPER NUMBER

2826

MAIL DATE

DELIVERY MODE

06/27/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,809	Applicant(s) CHU, DAPING	
	Examiner Minh-Loan T. Tran	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/07/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Preliminary Amendment filed on 06/07/2005 has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement filed 06/07/2005 has been considered.

Oath/Declaration

4. The oath or declaration filed on 06/07/2005 is acceptable.

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the length and/or width of one of the channel regions differs from that of the other channel region as recited in claim 2 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant’s use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase “Not Applicable” should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.

- (1) Field of the Invention.
- (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 1-3, "n-channel region and a p-channel region" is unclear as to whether it is being referred to the n-channel transistor and a p-channel transistor.

In claim 5, line 2, "an area **of the substrate** which separates the n-type source and n-type drain of the n-channel region" is unclear as to whether it is being referred to the area of the semiconductor layer that is formed on the substrate.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-6, 8, 12, 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Reedy et al. (GB 2-363,905).

With regard to claim 1, figures 1 and 2 of Reedy et al. disclose a semiconductor device comprising an n-channel transistor 70 and a p-channel transistor 80 formed on a common substrate 30, both transistors 70 and 80 having a source and a drain, the device further comprising a gate electrode 40 common to both channel regions 20 of the transistor 70 and the transistor 80 and spaced from the substrate 30 by an area of non-polarising dielectric material 24 arranged under the gate electrode 40.

With regard to claim 4, figures 1 and 2 of Reedy et al. disclose at least one of the n-channel transistor 70 and the p-channel transistor 80 has a further region 50 arranged between either the source and/or drain regions 70 and the channel region 122, having a doping concentration less than that of the S/D regions 70.

With regard to claim 5, figures 1 and 2 of Reedy et al. disclose an area 122 which separate the source and the drain 70 of the n-channel transistor and the source and the drain of the p-channel transistor has intrinsic doping only.

With regard to claim 6, figures 1 and 2 of Reedy et al. disclose the n-channel transistor 70 and the p-channel transistor 80 comprise a thin film region (i.e. SOI layer).

With regard to claim 8, figures 1 and 2 of Reedy et al. disclose the substrate 30 comprises a thin film substrate material i.e. SiO₂ on the silicon substrate.

With regard to claim 12, figures 1 and 2 of Reedy et al. disclose the n-channel transistor 70 and the p-channel transistor 80 are fully depleted.

With regard to claim 14, figures 1 and 2 of Reedy et al. disclose a method of operating a semiconductor device comprising selecting a voltage applied to the gate electrode 40 so as to selectively switch one of the channel regions between a non-conducting and a conducting condition independently of the other region.

With regard to claim 15, figures 1 and 2 of Reedy et al. disclose a method of operating comprising operating one of the channel regions 122 as a thin film region and coupling the source and drain regions 80 of the other channel region to a bias voltage, thereby to alleviate the kink effect in the one channel region.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 7, 9-11, 13, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reedy et al. (GB 2-363,905) in view of Takagi (JP 53-149,770).

With regard to claim 2, figures 1 and 2 of Reedy et al. do not disclose at least one of the length and/or width of one of the channel regions differs from that of the other

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channel region. However, figure 1a - 1c of Takagi et al. disclose a CMOS device wherein at least one of the length and/or width of one of the channel regions differ from that of the other channel region. It would have been obvious to one of ordinary skill in the art to form the CMOS transistors of Reedy et al. having at least one of the length and/or width of one of the channel regions differs from that of the other channel region such as taught by Takagi in order to enhance the carriers mobility.

With regard to claim 3, figures 1 and 2 of Reedy et al. and figures 1a-1c of Takagi do not clearly disclose the gate electrode is dimensioned to have a specified ratio relative to the width and length of one of the channel regions. However, it would have been obvious to one of ordinary skill in the art to form the CMOS device of Reedy et al. and Takagi having the gate electrode is dimensioned to have a specified ratio relative to the width and length of one of the channel regions in order to enhance the functionality of the device.

With regard to claim 7, Reedy et al. and Takagi do not disclose the thin film region comprises an organic semiconductor material. However, it would have been obvious to one of ordinary skill in the art to form the thin film region of Reedy et al. and Takagi 's device comprises an organic semiconductor material in order to enhance the carrier mobility. Although Reedy et al. and Takagi do not teach exact the material of the thin film region as that claimed by Applicant, the material differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional

differences and therefore would have been obvious. Note *In re Leshin*, 125 USPQ 416, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Circ. 1990).

With regard to claims 9 and 10, Reedy et al. and Takagi do not disclose the substrate comprises a direct bandgap material or a substrate is supported on a transparent supporting material. However, it would have been obvious to one of ordinary skill in the art to form the substrate of Reedy et al and Takagi 's device comprises a direct bandgap material or a substrate is supported on a transparent supporting material because such structure is conventional in the art to form the thin film transistor light emitting device. Although Reedy et al. and Takagi do not teach exact the material of the substrate as that claimed by Applicant, the material differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Leshin*, 125 USPQ 416, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Circ. 1990).

With regard to claim 11, Reedy et al. and Takagi disclose the gate dielectric layer 24 is formed of silicon oxide, but do not disclose the gate electrode comprises a transparent material. However, it would have been obvious to one of ordinary skill in the art to form the gate electrode of Reedy et al and Takagi 's device comprises a transparent material because such structure is conventional in the art to form the thin film transistor light emitting device. Although Reedy et al. and Takagi do not teach exact the material of the gate electrode as that claimed by Applicant, the material differences

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are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re* Leshin, 125 USPQ 416, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Circ. 1990).

With regard to claim 13, Reedy et al. and Takagi do not disclose the source of one transistor is serially coupled with the drain of the other transistor in order to form an inverter. However, it would have been obvious to one of ordinary skill in the art to form the CMOS transistors of Reedy et al. and Takagi having the source of one transistor is serially coupled with the drain of the other transistor because such structure is conventional in the art to form a compact inverter.

With regard to claim 16 and 17, Reedy et al. and Takagi do not disclose the semiconductor device is a light emitting device. However, it would have been obvious to one of ordinary skill in the art to form the CMOS transistors of Reedy et al. and Takagi function as a light emitting device in order to form the light emitting device having reduced size. Although Reedy et al. and Takagi do not teach exact the type of the device as that claimed by Applicant, the type differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re* Leshin, 125 USPQ 416, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Circ. 1990).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh-Loan T. Tran whose telephone number is (571) 272-1922. The examiner can normally be reached on Monday-Friday 9:00 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue A. Purvis can be reached on (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mlt
06/08

/Minh-Loan T. Tran/
Primary Examiner
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